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ABSTRACT

General concerns and considerations regarding measurement in affective education, primarily, measurement to support the student in his learning program and the teacher as a facilitator of learning, are explored. The following topics are discussed: (1) Accountability (of the schools for achievement of affective goals of education), (2) Purpose of Affective Measurement (the collection of data for decision making), Grading (affective measurement not to be used to establish grades), (3) Conditions versus Outcomes (identify conditions that contribute to affective growth and development, and construct measures to assess the extent to which these conditions are present), (4) Measurement in Support of Learning (measurement should be responsive to changes in objectives and the learning program), (5) Quantitative versus Qualitative Data (measurement that interferes with verbal feedback and interaction should be avoided), (6) Norm-, Criterion-, or Objectives Referenced Performance Data (for measurement of affective outcomes, objectives referenced measurement is preferred to criterion-referenced measurement), (7) Program and Curriculum Evaluation, (8) Instruments and Measurement Techniques, and (9) Problems and Constraints. Appendixes present Definition of Terms; Examples of Organizing Systems, Attributes, and Behaviors; and An Outline of Affective Goals of Education. (For related documents, see TM 002 184-186.) (DB)

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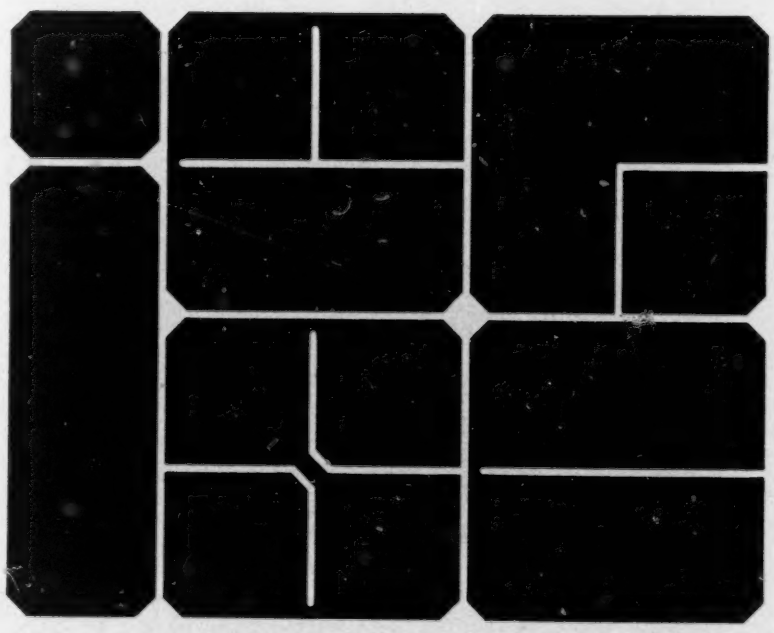

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MEASUREMENT IN SUPPORT OF AFFECTIVE EDUCATION

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PREFACE

The Interstate Educational Resource Service Center (IERSC) was established in 1970 to serve the states of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. The policy under which the Center operates is determined by a Board of Directors made up of the Chief State School Officer from each of the participating states. The funding is provided by contributions from each of the states, and a grant from the U. S. Office of Education under Section 505 of Title V, ESEA.

The Center's priority project, determined by the Board of Directors, is to provide support to the eight states in the identification and specification of affective goals and objectives (self-concept, attitudes, values, motivation, interpersonal effectiveness, social concern and responsibility, etc.), and assistance in the development of procedures, techniques, and instruments for assessing affective outcomes or conditions which facilitate or inhibit affective growth and development.

This is the first of a series of papers addressed to issues in affective measurement. It is preceded by a paper on affective goals compiled as a resource document for anyone interested in developing educational goals and objectives (Affective Goals of Education), and a paper outlining considerations for the development of objectives (Beyond Behavioral Objectives), with particular relevance to establishing affective objectives.

Subsequent papers in this series will focus on specific, often technical, issues in affective measurement. Additional copies of this paper and the above-mentioned publications are available through IERSC.

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MEASUREMENT IN SUPPORT OF AFFECTIVE EDUCATION

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The purpose of this paper is to explore general concerns and considerations regarding measurement in affective education. The positions taken and assumptions made will be tested throughout the eight state affective education project coordinated by IERSC, and will be modified as necessary to insure meaningful, practical, and useful measurement.

This paper is concerned primarily with measurement to support the student in his learning program and the teacher as a facilitator of learning. It is secondarily concerned with measurement for evaluation of programs or schools, and will treat measurement for research purposes only peripherally. The reason for this focus is that much can be done to improve affective measurement in the classroom now, without waiting for the results of long-range, empirical research.

Since measurement as proposed here is an integral part of the educational program, some attention will be given to the explication of the learning process to clarify the role of measurement. Learning requires knowledge of results. Measurement, in the global sense, is the process by which this knowledge is acquired. (See Appendix A for a discussion of definitions.)

Many persons feel that schools should not be concerned with affective aspects of a student's growth and development. But schools are forced to deal with unplanned negative affective outcomes--poor attitudes toward school, rebellion, aggressiveness, hostility, low self-esteem, lack of self-confidence,

lack of self-discipline, lack of responsibility, etc. Far too much time, money, and effort are consumed by such problems, and society is required to deal with the affective problems which are not solved in the schools or elsewhere, problems which are growing worse each year. Unless another viable approach to preventing or solving these problems can be found, education must assume the responsibility for doing what it can. If the focus in schools remains on eliminating negative affect when it is encountered, the problem will never be solved. Programs designed to achieve positive affective outcomes must be developed and implemented.

This is not meant to imply that cognitive outcomes should be neglected. It is unrealistic to assume that cognitive learning can be separated from affective growth and development. If one is neglected, the other will suffer. Those persons who claim to be interested only in cognitive outcomes are more likely to achieve these outcomes if some attention is given to affect.

ACCOUNTABILITY

This raises the issue of accountability, which for the most part is presently achieved by demonstration of academic achievement through performance on standardized tests. Bowers (1971) asks whether the teacher will "be held accountable for teaching students, in addition to the basic tools of communication, to raise their own questions, to make their own synthesis of ideas, to trust their own insights, and to understand their culture so they will no longer be influenced by its unexamined premises?" He said, also, that:

> It can be argued that one of the characteristics of a competent teacher is that he attempts to foster independent and responsible thinking among students by encouraging them to consider conflicting evidence, ideas, and values. This process is essential to developing the student's self-confidence in the power of his own intellect, and to developing his ability to assess the evidence and to formulate his own conclusions.

Holding the schools accountable for academic achievement without consideration for affective growth and development could result in tighter controls and more rigid programs which might be even less effective and more damaging affectively than traditional programs. Teachers, as well as students, respond to the rewards and punishments of the system. If schools are to be held accountable for achievement of affective goals of education (Wight, 1971a), programs must provide for their achievement, and for measurement of results.

PURPOSE OF AFFECTIVE MEASUREMENT

Measurement in a program designed to achieve affective growth and development should be concerned with two general areas: (1) student behavior and characteristics relative to the objectives, and (2) conditions assumed to contribute to their achievement (climate, teacher behavior and attitudes, teacher-student interaction, instructional program characteristics, etc.). Within these general areas, the information needed to make given decisions will suggest what should be measured.

If measurement does not contribute useful data for necessary and meaningful decisions, it not only may be a waste of time but may create an aversion to any kind of measurement. An exception might be measurement for collection of data to familiarize certain persons with a program, with the assumption that it may serve as the basis for future decisions. It is essential that we not measure just to be measuring but that we measure with a clearly prescribed purpose in mind.

Determination of the kinds of affective measurement needed should be based on the decisions that have to be made and the data needed to support these decisions. It is thus necessary to first determine what kinds of decisions need to be made by various persons--the student, teacher, student and teacher together, the guidance counselor, curriculum specialist, principal, superintendent, parent, state superintendent of public instruction, etc. It goes without saying that different types of decisions may require quite different types of supporting data.

Data regarding individual students' behavior, characteristics, and needs would be needed for placement in programs. Data regarding individual performance and progress (change over time) in a given learning program would be needed by the student or student and teacher together to determine whether to accelerate

the program or slow down, alter the emphasis or direction, move ahead or review, identify additional resources, etc. Collective data regarding student performance and progress in respect to certain learning objectives might be required to make a decision about changes in a program or allocation of resources to schools or classrooms. Relative cost-benefit data might be needed to make a choice between programs. Climate data would be useful in determining whether changes were necessary in policies, procedures, administrative or teaching staff attitudes and behavior, etc.

It would be necessary, also, to establish priorities. Only so much time can be devoted to measurement. More important decisions and data should take precedence over those considered to be less important. The importance of the decision may also determine in part, along with validity of measures, the amount of supporting data required.

It should be obvious that the most important person in the school is the individual student. Decisions most closely related to his learning program should be of top priority. Ideally the most important data would be those that were meaningful and useful to the student himself in assessing or evaluating his progress in his learning program. Next in importance would be data needed by the teacher in his support of the student, and so on.

For affective growth and development, it is essential that this position be taken. Such objectives as a positive self-concept, self-confidence, self-direction, self-discipline, responsibility, and positive attitudes toward learning are much more likely to be achieved if the student is actively involved in assessing and making decisions about his learning program. Healthy, effective relations with others and constructive, responsible attitudes toward society are more likely to develop if the student is involved in meaningful problem-solving and decision-making activities with other students and the school faculty.

GRADING

Affective measurement should not be used to establish grades, as grades are traditionally determined and used. It is generally recognized that the traditional grading system is grossly inadequate, and in a great many schools it is being abandoned or modified. Grades not only fail to adequately reflect a student's learning, growth, and development, particularly in the affective area, but for far too many students grading results in negative self-evaluation, loss of ambition, and alienation from the system. As Lessinger (1970, p. 24) said, "in most cases the children adopt these grades and scores into their self-definition." Grades are not a positive measure of achievement as much as a negative measure of failure. The grade tells most students that they are somewhat below where society would like them to be. They see the rewards, recognition, and acceptance going to those few who are at the top (no one wants to be average), and see themselves viewed as inferior in respect to abilities valued highly by society.

As Lessinger (1970), Glasser (1969), and many others have pointed out, the present system of grading insures the failure of a great many students. Only a few students can be at the top. Students are thus forced to compete with one another for the favored position. If they see this as futile, they must resign themselves to a self-image of inferiority, or renounce the system that places them in such an untenable position.

If such negative outcomes can result from traditional evaluation (grading) of academic (primarily cognitive) performance, the outcomes could be expected to be even more damaging if grades are based on affective behavior or characteristics. Students would find themselves being evaluated not only on academic achievement but on the basis of their personal worth and effectiveness as human beings.

CONDITIONS VERSUS OUTCOMES

It can safely be assumed that a unit of instruction or course designed to achieve certain affective outcomes (i.e., self-esteem, responsibility, positive attitudes toward learning, ability to work effectively with others, etc.) is not as effective in achieving these objectives as experiences in regular courses conducted in such a way that they are conducive to the development of such attitudes, characteristics, and abilities. It is essential, therefore, that we identify conditions which contribute to affective growth and development and construct measures to assess the extent to which these conditions are present.

It is not enough to measure student behavior and characteristics with respect to given affective objectives. We must also have a description of the program or programs designed to achieve these objectives and an evaluation of the effectiveness with which the programs are carried out. A well-conducted program may prove to be ineffective in achieving given objectives, whereas another program conducted less well may prove to be effective. A comparison of student performance and program characteristics, with consideration of other pertinent variables (such as parent and community attitudes, school climate, teacher attitudes and characteristics, etc.), is required to support any assumptions about a program's effectiveness.

Ultimately, it may prove to be more productive to measure conditions rather than outcomes of affective growth and development. Less emphasis may be required on measurement of outcomes if at some time we have identified and can measure the conditions necessary for their achievement. Before we can determine with certainty which conditions are most conducive to growth and development, however, it will be necessary to compare outcomes with conditions.

CULTURAL CONCERNS

Insofar as possible, measurement should be culture free, and if not culture free, culture specific. It is assumed that most affective objectives represent needs or aims that are common across cultural and ethnic groups, although objective achievement or need satisfaction might be manifested in quite different ways. Care must be taken that measurement does not imply or require behavior preferred by the dominant culture in respect to particular objectives. Where cultural differences exist, these differences must be taken into account and afforded equal status and legitimacy.

The negative consequences of being evaluated or evaluating oneself on the basis of the values and standards of the dominant culture have long been recognized as a serious problem in the education as well as in the socialization of students from minority groups. If these persons are to develop healthy self-concepts and positive attitudes toward others and society, equal respect must be given to the values, standards, and ways of the minority cultures. It must be recognized that we live in a pluralistic society.

As Eduardo Bonilla (1972) said: "An educational system geared to the goal of Americanization has become a gate to hell for Puerto Ricans, Chicanos, Blacks, and American Indians, because it attempts to disintegrate their identity and force them into the American way. It spells self-hatred, endo-violence, and dehumanized uprootedness."

The "American way" as presented to and perceived by persons from these sub-cultures is the way of the white, middle-class cultural group. If measurement supports and reinforces the evaluation of oneself, one's family, and one's cultural heritage against the values and standards of another culture, it is contributing to the wholesale destruction of sub-cultures through the eroding of self-respect, self-confidence, and feelings of personal worth, acceptance, and identity.

MEASUREMENT IN SUPPORT OF LEARNING

One reason why affective education has been neglected is that affective growth and development are difficult to measure. It is not possible to observe feelings and attitudes directly. We see only their outward manifestation, but they may be concealed, disguised, or exhibited in very subtle ways. Even the person himself may be unaware of change or growth that has taken place. Development of beliefs, values, attitudes, prejudices, etc., occurs unconsciously, for the most part. If we do know that it has occurred, we seldom know when or how. Changes in maturity, confidence, flexibility, resourcefulness, openness, tolerance, etc., usually occur gradually, with little awareness on our part.

This does not mean that we should throw out such objectives because we feel we cannot satisfactorily measure change. If the objectives are important, they should be retained, and we should continue our efforts to improve their measurement. Very few instruments have been developed that have proven to be effective for affective measurement, particularly at the student or teacher feedback level. Developing and testing such instruments is a monumental task, one that will require the efforts of a great many persons over a considerable period of time. It is essential that the effort be made, however. The affective area has been neglected far too long in education.

Measurement should be responsive to changes in objectives and the learning program, as opposed to determining both, as is too often the case. Measurement should be in the service of objectives, not vice versa. Objectives should be open to change or modification throughout a course of instruction as a result of student-teacher interaction and new insights and understandings. If objectives and measurement are to be understood by students, the students should be involved in their development and definition. Measurement must be flexible enough to accommodate changes as they occur.

The present educational focus on measurable behavioral objectives would seem to suggest the use of behavioral objectives for affective measurement. There are, however, inherent restrictions on measurement which could not be avoided with the behavioral objectives approach (where outcomes, conditions, and criteria are all specified in each objective statement). For example, such an approach normally does not provide for alternatives in measurement other than those specified in the objectives, thus precluding demonstration of learning or change on the basis of other opportunities for measurement arising from the learning activities. As an alternative, separation of the outcome component from the indicator behavior criteria and conditions component will allow a variety of measurements from various sources for any given objective. (See "Beyond Behavioral Objectives," Wight, 1971, for further discussion.)

If measurement is to be practical and useful at the classroom level, the focus should be on simplified, straightforward procedures and techniques that can be used with a minimum of time and effort by teachers, teaching assistants, and students. More sophisticated techniques, requiring an inordinate amount of time for analysis and interpretation, or the services of a measurement specialist, should be used only when absolutely necessary.

In a dynamic program, in which needs and objectives might be changing and unanticipated problems may be arising, it would be impossible to meet the needs of each situation with ready-made instruments. Procedures and techniques should be simple enough, therefore, to allow students and teachers to construct their own measures when ready-made instruments are not available. These measures might involve climate, interaction, or process data as well as student performance data. Easy-to-follow guidelines might also be made available to help teachers and learners determine how much and what kind of data would be needed for their particular purposes.

For formative assessment or evaluation of a student's progress (see Bloom, Hastings, and Madaus, 1971), techniques should be readily available to provide data at the most opportune time in the problem-solving, decision-making process. Measurement ideally should be responsive to the needs of the situation, providing the specific data needed when needed. Insofar as possible, measurement for direct support of the learner should be an integral part of the learning process, closely related to the other learning activities.

FEEDBACK

It is important that all persons involved in affective measurement understand the purpose and utility of feedback (information regarding one's performance or progress). In the conventional classroom, the student too often is required to follow a given program with very little corrective or supportive feedback. He may not know until the end of the program or instructional sequence how he did, and then he may know only that he did poorly or fairly well in relation to the performance of his classmates. He still doesn't know why, or specifically where he needs to improve.

The student should know where he is going, how to get there, and how he is doing along the way. A learning program should function as a highly efficient servomechanism, monitoring its own progress and taking corrective action as needed. Measurement would provide the sensors, picking up the data and feeding it into the system. The data might show that the program was on course and progressing well, or they might show that something was amiss and corrective action should be taken.

A system can easily be overloaded with data, however, leading to rejection of the data and possibly breakdown in operations. It is essential, therefore, that requirements of the system dictate what data are needed and when. Procedures should not require that unnecessary data be fed into the system, or necessary data fed in at an inappropriate time.

Procedures and techniques should go beyond collection, analysis, and interpretation of data. Acceptance and use of data about one's own behavior depend very much on the manner of feedback. It is important, where feedback to students is concerned, that the teacher or other person providing the data be sensitive and responsive to the needs, readiness, and capacity for acceptance of feedback of the individual student. This is particularly true with affective feedback, which may be much more personal and potentially threatening than feedback regarding academic performance. The following guidelines may prove useful:

1. Insofar as possible, feedback should involve descriptive and assessment data. The person should be allowed to make his own evaluations.* If he is being evaluated, and particularly if he perceives the evaluation as criticism, he is much more likely to react defensively and possibly to reject both the data and the person providing the data.

2. It should be specific rather than general, naming the behavior, time, and situation and referring to a well-defined objective. General, vague impressionistic data gathered over a period of time are of little use to anyone. more often than not create resentment, and are quite often invalid.

3. It should deal with description of behavior rather than inferred characteristics or personality traits, unless the characteristics are tied to specified behaviors.

4. It should concern what was done, when, where, and how. The why, an inferred motive or intent, is usually not acceptable data.

5. It should be well-timed, presented as soon after collection as possible, at a time that is appropriate for the receiver.

6. It should take into account the needs of the receiver, not the needs of the giver. It should be given to help, involving the type and amount of information the receiver can accept and use, not what the giver might like to provide.

7. It should be checked to insure clear communication. Particularly if the feedback is perceived as threatening, it can be subject to considerable distortion and misinterpretation.

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*The reader is referred to the appendix for definitions of these terms as they are used in this paper. Since these terms are used in so many different ways by different persons, it should not be assumed that the definitions are the same as those used by the reader.

8. It should be given without advice, unless advice is solicited and appropriate. Responsibility should not be taken away from the receiver for use of the information in problem-solving and decision-making.

Although the focus should be on data to support the student in his own learning program, some data should not be made available to the student. It might be better if data regarding negative characteristics such as low self-esteem, inability to cope with stress or frustration, defensiveness, inability to relate to others, etc., were not presented to a student, unless by someone skilled in working with students to process such data. Confronting the student with negative data before he has developed the ability to cope effectively with such data would be counterproductive and perhaps destructive, unless the teacher or counselor is experienced in helping the student face such problems in a constructive, problem-solving manner. Such data would help the teacher understand the particular needs of that student, however, and the kind of relationships, program, and climate required to help him learn to overcome these problems.

In developing and implementing measurement procedures and techniques, it is imperative that all concerned recognize that measurement as well as use of measurement data should be responsible. Measurement should contribute to, not inhibit achievement of affective objectives. Measurement for feedback should not, therefore, focus on evaluation of oneself against others or against unrealistic standards, with the virtually inevitable result of self-depreciation and destructive competition. Norm-referenced data, rankings of students, and ratings that call for comparison with other students or even a hypothetical average student are, for the most part, counterproductive in terms of affective outcomes. Such data might be useful for program evaluation or research, but not for feedback to the student, except in special situations.

It can be argued that students will be comparing and competing among themselves in any event. Such comparison and competition does not have to be destructive, however, if it is not related to the rewards and recognition of the system. Non-evaluative or -judgmental comparison can be used to promote recognition of and respect for individual differences. If the rewards are related to achievement of objectives rather than superiority over others, the way is clear for cooperation rather than competition, or for competition for excellence as opposed to win-lose competition. No one needs to lose. No one needs to fail.

Sociometric data or data comparing students might be useful if treated as part of an instructional program designed to help students learn to solve or cope with the particular problems disclosed by the data. Effectiveness in working with others in a problem-solving situation might be an example. But even in such a program, objectives-referenced rather than norm-referenced data should be used wherever possible.

QUANTITATIVE VERSUS QUALITATIVE DATA

Students and teachers often resist using numerical data, particularly for assessment and evaluation of non-cognitive performance or characteristics. We feel that most data can be quantified, however, and that more efficient and effective decisions will result from use of quantified data. Man's constructs, on the basis of which he makes his judgments, are relational and dimensional, according to Kelly (1955). With sufficient effort, we can identify the constructs being used and the polar opposites being employed, and construct a scale to incorporate the various observations or judgments that might be made.

We do not feel that it would be desirable to quantify all affective data. The use of numbers can facilitate or interfere with communication, depending on when and how they are used. Measurement which interferes with verbal feedback

and interaction should be avoided. With too much reliance on quantitative data, personal contact and reinforcement can be lost. Such procedures are likely to be resented by students, who would come to regard them as mechanical, impersonal, and dehumanizing.

Measurement should support and facilitate the sharing and effective use of data on a timely basis, whether quantified or not quantified. It is quite likely that most data at the student feedback level, in a situation of openness and trust, will be more qualitative than quantitative. The spontaneous, informal sharing of observations, perceptions, and even impressions may be of more value than more formal and precise quantified data in the facilitation of learning.

NORM-, CRITERION-, OR OBJECTIVES-REFERENCED PERFORMANCE DATA

For affective measurement in particular, it is essential that a distinction be made among norm-referenced, criterion-referenced, and objectives-referenced measurement. Both measurement procedures and resulting data are different across the three types of measurement. Norm-referenced data compare an individual's performance on a given measure to the performance of others from a sample representative of a defined population. Objectives-referenced data assess his performance or progress with respect to the achievement of objectives. Criterion-referenced data identify his performance level against specified standards of achievement.

Objectives-referenced data focus on achievement of the objective itself and are more likely to be non-evaluative, whereas criterion-referenced data place greater emphasis on performance levels measured against specified standards. This is a subtle, but important distinction. While objectives-referenced data must also contain criteria for measurement purposes, the standard or performance level may not be as rigorously stated.

All three kinds of measurement can yield data needed to make decisions about individuals, curriculum, and instructional programs, but norm-referenced data from standardized tests are useful only in making gross decisions. They lack the specificity to pinpoint and delineate changes needed within a curriculum or program. Criterion- and objectives-referenced data have valuable potential for formative purposes; i.e., feedback and diagnosis of individual progress with respect to specific objectives.

Standardized tests, producing norm-referenced data, are different from criterion- or objectives-referenced tests primarily in the orientation toward selection of items. The norm-referenced test is constructed to differentiate among people. If it does not spread people out, for easy assignment of ranks, percentile scores, grades, etc., it is not considered to be a good test. In constructing a norm-referenced test, items should be related to the subject matter (and objectives if they have been specified), but this is a secondary consideration. Items are selected that are neither too easy nor too difficult. No matter how germane to the subject or objective, an item is rejected if it will not discriminate among students.

A person's score on the standardized test does not tell anyone, least of all the student, what he knows, how well he understands what he knows, or how effectively he can apply what he understands. It reveals only how well he performed on that particular test in relation to other persons taking the same test. Such a test is seldom constructed to allow analysis of test results to determine those specific areas in which the student is performing satisfactorily, those in which he is deficient, and the nature of the deficiency.

In contrast to the norm-referenced test, the concern in constructing an objectives-referenced test is how well it measures the extent to which a student has achieved the objectives. No one is concerned about how well the

student does in relation to other students, except for research purposes or program evaluation. Items are not selected to spread people out, they are selected on the basis of their relationship to the objectives. Items are not considered too easy or too difficult (given clarity and lack of ambiguity) if they are good indicators of performance with respect to achievement of objectives. The purpose of the test is to determine which objectives have been achieved and which have not.

For these reasons, it is felt that criterion-referenced or objectives-referenced performance data have greater legitimacy for measurement of affective outcomes in particular. This is especially true if we accept the assumption that there should be no constraints on the number of students who are able to achieve affective objectives.

For measurement of affective outcomes, objectives-referenced measurement is preferred to criterion-referenced measurement for several reasons:

1. Criterion-referenced testing implies fairly precise performance standards. Such performance standards are often difficult to write for affective objectives, and experience has shown that affective criterion levels are often viewed as arbitrary by students even when they have participated in their definition.

2. The establishment of rigorous performance standards may provide the student with a better understanding of the way in which the performance will be measured, but it may also result in a focus on the indicator of goal achievement rather than on the goal itself.

3. Establishing rigorous performance levels would not be desirable for many affective objectives, particularly if we are concerned with individualized learning and self-actualization. For example, if an objective is concerned with continued growth and development beyond the educational program, we may wish to measure the process (the process may be the objective). Establishing and communicating expected performance levels can diminish the overall emphasis on continued individual growth and development.

4. We may not wish to measure performance in relation to all affective goals, and therefore would not want to state a performance level. Some goals may be treated as aims or directions of movement, not as a static outcome to be achieved.

5. Data not collected against specific performance standards would permit more flexible measurement procedures. The measurement of

various approach behaviors would be possible toward those more general affective objectives that appear particularly difficult to measure.

6. The use of an objectives-referenced approach would not exclude the specification of levels of performance where criterion-referenced measurement was desirable.

PROGRAM AND CURRICULUM EVALUATION

A program or curriculum should be evaluated with respect to its effectiveness in assisting individual students to achieve specified objectives. Evaluation is not as concerned with an individual student's performance in relation to other students as with his progress with respect to the objectives, and the extent to which it appears that particular aspects of the program or curriculum are contributing to or interfering with his progress. It is then possible to modify the program for each individual as necessary.

Major changes in a program or curriculum might be made if it is found that particular strategies or units of instruction are consistently effective or ineffective with a majority of the students. In this case, pooled, or consolidated criterion- or objectives-referenced data might be most useful. Determination of effectiveness might be based on (1) the percentage of students in a program achieving the objectives, and (2) the percentage of objectives achieved by the student, with an analysis of possible or apparent reasons for lack of achievement, based on other available data. Objectives- or criterion-referenced data converted to normative data might also be useful. We would still not be using norm-referenced data from a standardized test, however, unless it had been constructed in such a way that it would allow analysis of parts, or sub-scores within the test.

Norm-referenced data might be used in overall evaluation of a program, for example, in comparing performance of students in program A with that of students in program B. It would be difficult to compare two or more programs on the basis of criterion- or objectives-referenced data unless terminal objectives were similar. Standardized test data would not provide a true comparison either, if objectives of the programs were different. Regardless of how the programs are compared, their objectives have to be similar, and data have to be available regarding the effectiveness with which each program was

conducted, school climate, characteristics of the student population, home and community environment, etc., before an accurate judgment can be made regarding the relative effectiveness of the different programs.

A single program might be evaluated on the basis of performance on standardized tests against national norms, but this practice is of questionable value, even with purely academic performance in such areas as reading and mathematics, unless one can be certain that the test was actually standardized on the population represented by the group in this particular program. We cannot legitimately use a test standardized with one population to evaluate the performance of a group from another population.

This is not a major consideration in affective measurement as yet. There are few standardized tests in the affective area which one could use with any degree of confidence in evaluating a school program. But we should proceed with caution in constructing such tests, and should be aware of the pitfalls in their use.

A program might also be evaluated on the basis of unobtrusive data--data available from sources other than those mentioned thus far, such as attendance, truancy, referrals to the principal or guidance counselor, self-initiated projects, parent interest and involvement, and possibly even such areas as juvenile delinquency, vandalism, etc. Most of this type of data could be obtained from sources other than the student himself. The process of collecting the data would have very little effect on the program, therefore, whereas most measurement involving the student would, and probably should, affect the program.

INSTRUMENTS AND MEASUREMENT TECHNIQUES

Armstrong, Cornell, Kraner, and Roberson (1970, p. 63) state that the most serious limitation of affective measurement probably is "the inappropriateness of techniques as related to anticipated program objectives." Most instruments have been designed for norm-referenced rather than criterion- or objectives-referenced measurement. This is an important consideration when reviewing instruments for affective measurement.

Selection of instruments for testing and use in affective measurement should be based on the affective objectives which are established and the data that will be accepted as evidence of their achievement. It is doubtful that many available instruments would be acceptable in their present form.

Some procedures, i.e., certain classroom observation systems, rating scales, questionnaires, etc., lend themselves to adaptation and modification. In the majority of cases, however, new affective instruments will need to be developed and tested for objectives-referenced measurement.

Instruments which appear to show the most promise for affective measurement, as well as those seen as having little or no utility, are discussed briefly below.

1. Standardized instruments (interest and preference tests, attitude surveys, value and personality inventories, etc.). It is not advocated that much, if any use be made of standardized instruments for collection of data for direct classroom feedback. Some standardized instruments might be useful for program or curriculum evaluation or research, where norm-referenced data were desirable.

2. Projective instruments and techniques. A number of projective instruments are available, generally for clinical diagnosis or personality measurement. Projective instruments employ a variety of approaches such as sentence

completion, word association, reactions to pictures or inkblots, etc. Interpretation and scoring of such instruments for the most part require subjective decisions by professional testers. This tends to decrease the utility of such tests for classroom use, if we are seeking to identify instruments easily used and scored by teachers and students, on measures which would provide timely feedback.

The psychological nature of projective tests also has raised numerous questions regarding their use. Straightforward techniques that produce data more accessible and understandable to the student would be more in keeping with the affective objectives of education.

In short, the time-consuming and complex nature of projective tests presents obvious difficulties for adapting, developing, or using this type of test in affective education. However, it may be worthwhile for school counselors or psychologists to use such instruments occasionally to diagnose and treat students referred to them with special problems in the affective area. Their use should be governed by local school policy or professional discretion.

3. Rating and Attitude Scales. It would appear that rating scales (including self-ratings) and attitude scales would provide the most useful data for affective measurement. In affective measurement we have little concern for knowledge of facts or understanding of concepts. We are primarily concerned with such things as beliefs, attitudes, attributes, characteristics, and behaviors (See Appendix B) as they relate to affective goals of education (See Appendix C). These can best be determined through self-report or through the observations and judgments of raters.

Rating scales provide the most direct measure of observations, perceptions, and judgments, and for the most part are easily administered and scored. They

have their drawbacks, of course. Helmstadter (1964, p. 181) said that "the problem with impressionistic judgments of broadly defined 'traits,' especially when recorded some time after the observations are made, is that such ratings do not often reflect actual behavior." The more concrete and specific the behavior being rated, the closer in time the rating is made to the actual occurrence of the behavior, and the greater the opportunity of the rater for observation of the behavior, the more accurate the rating is likely to be. Validity and reliability of rating scales can be improved through careful construction of the scales and training of the rater. With some training, teachers and students could construct and make effective use of rating scales.

Attitude scales differ from rating scales in that they are designed to measure "the degree of positive or negative affect associated with some psychological object [Thurstone, 1946, as quoted by Edwards, 1957, p. 2]." Attitude is used very broadly here, to include beliefs, values, motivation, preferences, and the like (See Appendix B). In an affective education program, these are as important to measure as characteristics and behavior.

(More detailed and technical discussion of rating and attitude scales will be presented in a subsequent paper.)

4. Interaction analysis and climate instruments. Climate and interaction instruments generally measure the conditions present in a classroom, or what is often referred to as the affective climate of the classroom.

The most common technique for climate measurement is the classroom behavioral observation system. The use of such systems in the past has too often been limited to research, teacher training, and occasional teacher supervision. A majority of these systems have been devised to focus on affective interaction, although a number deal with the cognitive and a few with both cognitive and affective interaction.

Major drawbacks in using these complex systems for affective education are the personnel (and often the equipment) required for data collection and coding, as well as the delays in feedback. Modifications in these observational systems seem necessary and possible. It is believed that students can be taught to use these tools to monitor their own approaches to learning and patterns of behavior (Simon and Boyer, 1967, p. 23). Teachers could also modify these instruments to monitor their own behavior.

Simpler classroom climate questionnaires are also available. These instruments generally focus on student and/or teacher perception of what occurs in the classroom, and are sometimes referred to as perception of environment measures. Other climate instruments deal with the overall school environment, the family, and the community.

5. Other instruments and techniques. Other techniques, i.e., situational tests, participative games, interviews, sociometric measures, rankings, and traditional testing methods such as essays, true-false tests, multiple-choice tests, and questionnaires, may be useful in some cases for affective measurement, but should be used carefully to avoid authoritarian, "right answer" responses. The comparitive nature of the sociometric technique and its implications for affective measurement have been discussed previously.

PROBLEMS AND CONSTRAINTS

A major problem in implementing the approach to measurement proposed here is the traditional experience and expectations of administrators, teachers, and students. Even if one can accept and understand the need for change, long-standing expectations and behavioral patterns are difficult to change. The change to criterion- or objectives-referenced measurement is difficult when we have been accustomed to norm-referenced measurement or measurement that requires little more than recall of facts. Even with criterion- or objectives-referenced data, there is the danger of comparing the student with other students, and labeling or treating him as inferior or superior.

A frequent complaint of measurement or evaluation specialists is that the data they provide are either not used or misused. With a focus on simplified approaches and techniques that can be used by the teacher and student in the classroom, however, this problem may be overcome. Some teacher training will be required, however, to train teachers to use these techniques and to break down the traditional dependency on the measurement specialist.

An authoritarian structure and interaction process within the school will also inhibit effective implementation of the participative, student-oriented measurement process necessary for the achievement of affective objectives mentioned previously. In the typical authoritarian environment, there is considerable resistance to accepting the student's assessments and evaluations as a legitimate source of measurement data and refusal or failure to involve the student in the measurement process (identifying data needed and developing and using instruments to collect, analyze, and interpret data).

Inertia is also a major problem, the lack of willingness or initiative to experiment or to participate in the development of an effective measurement program. This is true of persons at all levels, of course, administrators, teachers, and students. Many persons are satisfied with the status quo, even

though they feel it is not the best possible system. Some persons, particularly students, are pessimistic and cynical regarding the possibilities of change and will not put forth the effort. Some find security in a system with which they are familiar, and are thus resistant to change.

It is difficult to overcome the student's view of measurement as being primarily related to grades. With the importance that grades usually assume, the grade is the objective. For the achievement-oriented student, if something does not contribute directly to the grade, it isn't worth bothering with. When grades are perceived by a student as punishing and controlling, he is likely to resent and resist any measurement. It would be difficult to convince him that any type of measurement would be useful and helpful to him.

When it is felt by students that measurement might be involved in establishing a grade or in their evaluation by the teacher, they will often try to provide socially desirable responses, or responses they feel the teacher wants. This is a particularly serious problem in affective measurement, in which there seldom are right and wrong answers and where one has to rely on sincerity and honesty in reporting. It is not easy to develop the kind of trust required if the students have been accustomed to an authoritarian, coercive, or even paternalistic environment.

If affective objectives are developed that are meaningful to the students and their teachers, and if measurement is perceived as part of the learning process, directly related to these objectives, most of these problems can be overcome. The more students and teachers are involved in specifying objectives and developing measurement procedures, the more probable the conditions will exist for an effective affective program. Affective measurement is very much dependent on a measurement process designed and conducted with affective outcomes in mind.

APPENDIX A

DEFINITION OF TERMS

Because of the confusion surrounding the inconsistent and sometimes conflicting meanings assigned to key terms, and because of the importance not only of communication but of avoiding confusion in our own use of terms, we feel it essential to propose a few definitions. Three terms in particular, measurement, assessment, and evaluation, the definitions of which have been debated in recent literature, have caused considerable confusion (Bloom, 1968; Glass, 1968; Scriven, 1968; Stake, 1969). They are often used interchangeably, or are assigned different meanings by different writers. The term "description" has been added, because as defined here, it is important to distinguish from the others.

The meanings assigned will be quite arbitrary, but it is essential that the following operations be defined, distinguished, and named for clarity and precision in communication. Measurement is defined as the: collection, organization, analysis, and interpretation of quantifiable data for the purpose of description, assessment, or evaluation.

Measurement is used here as a global term, encompassing description, assessment, and evaluation based on numerical data. More literally it describes the process by which data are assembled for these purposes. Reference is made to "quantifiable data" to distinguish it from other, non-quantified data which might be useful for feedback or decision making. We would not want to preclude a teacher or student's use of intuition or "feeling" in making decisions.

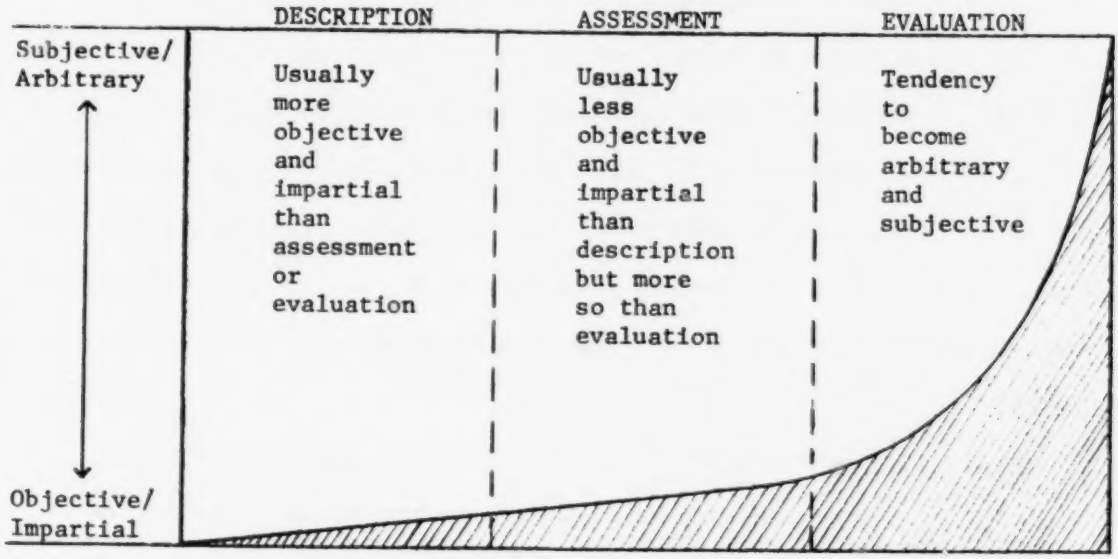
Description, assessment, and evaluation are defined in Table 1. One critical difference among the three operations lies in the degree of subjectivity

or arbitrariness versus objectivity or impartiality. The graph in Table 1 attempts to portray the differences on this dimension. Openness to feedback on the part of the person or persons whose activities or characteristics are being described, assessed, or evaluated is very often directly related to the apparent subjectivity/arbitrariness or objectivity in the process.

A second critical difference is the purpose of the operation, which becomes more potentially threatening as it moves from description to assessment to evaluation. Sharp separations can seldom be made between the three, but it is important to attempt to make the distinction because of the possible negative consequences of increased threat. It is particularly difficult at times to make a clear distinction between assessment and evaluation, or to prevent what should be assessment from becoming evaluation. This is one of the biggest obstacles to effective feedback.

It is important that we recognize the interaction of increased subjectiveness or arbitrariness in judgment with increased potential significance of decisions made. It should also be recognized that the sequence in the total process should be data collection, description, assessment, and finally evaluation. Too often, we make hasty evaluations on the basis of very personal values and standards and then seek to collect data to support the evaluations made.

TABLE 1. COMPARISON OF DESCRIPTION, ASSESSMENT, AND EVALUATION



DESCRIPTION	ASSESSMENT	EVALUATION
Collection and organization of quantitative or qualitative data	Analysis of a behavior, process, program, outcome, state, condition, etc., With respect to plans, procedures, objectives, standards, and criteria	Analysis of the results of assessment data Against standards, criteria, or values (often personal)
For the purpose of describing, depicting, or defining a behavior, process, program, outcome, state, condition, etc.	To identify deviations and discrepancies; For the purpose of determining needs and alternatives.	To determine worth, value, quality, importance, effectiveness, efficiency, practicality, utility, etc. For the purpose of selection/ acceptance or rejection, approval or disapproval, determining inferiority or superiority, or establishing priorities.

DESCRIPTION

Description, as defined here, provides information about a particular student behavior, teaching method, student-teacher interaction, instructional program, etc.--its main features, special characteristics, frequency, sequence, time of occurrence, etc. Descriptive data could be used for assessment or evaluation but would not have to be used for either. Such data, for example, would be useful or perhaps necessary if it were decided that a given program should be repeated, or just to acquaint persons with the programs.

ASSESSMENT

Assessment as used here is likely to create the greatest number of problems. It is often used interchangeably with measurement, description, and evaluation. Its derivation would suggest measuring or determining the value of something, but it is also used quite often as defined in Table 1. Since we have been unable to find a term that represents the non-evaluative operations described, we have arbitrarily decided to use the term assessment. It is a very necessary and important process in educational measurement.

Assessment goes beyond description in that it relates what exists or what has occurred to what was planned, prescribed, or expected. The purpose of assessment is the determination of learning needs by identifying discrepancies which exist between what was planned or established as objectives, procedures, strategies, standards, criteria, etc., and what actually occurred. Assessment could take place at any time during a program or learning sequence, i.e., it could be formative or summative in nature, but it stops short of evaluation, the act of judging worth, value, utility, etc.

EVALUATION

The definition of evaluation given here is consistent with that given by Glass and Worthen (1970), who state:

> "Evaluation is the determination of the worth of a thing. It includes obtaining information to judge the worth of an educational program, product, or procedure, on the potential utility of alternative approaches designed to attain specified objectives."

Evaluation involves making a value judgment as opposed to a non-evaluative assessment. As stated earlier, however, the distinction between evaluation and assessment is sometimes fuzzy. The judgment involved in defining a state or condition with respect to plans, objectives, or expectations is not always value-free. When determination is made of performance or progress in relation to plans or objectives, a value judgment is difficult to avoid. We feel it is important to make the distinction, however, and to strive toward awareness of the extent to which a given measurement is an assessment or an evaluation.

APPENDIX B

EXAMPLES OF ORGANIZING SYSTEMS, ATTRIBUTES, AND BEHAVIORS*

ORGANIZING SYSTEMS (What Man Possesses)	ATTRIBUTES (What Man Is)	BEHAVIORS (What Man Does)	
constructs	mature	observing	questioning
concepts	confident	listening	testing
beliefs	wise	seeking	verifying
values	congruent	searching	examining
standards	self-accepting	exploring	analyzing
ethics	flexible	memorizing	evaluating
mores	adaptable	recalling	judging
philosophy of life	creative	reproducing	anticipating
ideals	resourceful	sensing	predicting
aspirations	imaginative	perceiving	solving
life goals	productive	discovering	deciding
attitudes	conscientious	accepting	intending
theories	dedicated	conceptualizing	planning
sentiments	self-sufficient	understanding	preparing
sanctions	independent	valuing	rehearsing
obligations	perceptive	identifying	persevering
expectations	insightful	comparing	experiencing
likes/dislikes	motivated	classifying	feeling
preferences	persistent	associating	enjoying
intentions	energetic	arranging	appreciating
motivations	idealistic	organizing	imagining
opinions	open	structuring	creating
concerns	sensitive	synthesizing	designing
	dependable	interpreting	communicating
	responsible	abstracting	risking
	trusting	elaborating	sharing
	cooperative	transforming	supporting
	patient	generalizing	asking
	warm	projecting	reacting
	kind	extrapolating	responding
	understanding	thinking	defending
	tolerant	wondering	explaining
	humane	contemplating	describing
	courteous	considering	respecting
	empathic	reflecting	approving
	humble	inferring	tolerating
	reliable	concluding	avoiding
	trustworthy	assuming	
	positive	hypothesizing	

*This is not presented as a complete list, but only as examples of the three categories. See Wight, A. R., Affective Goals of Education, Interstate Educational Resource Service Center, 1971, for a more complete discussion.

APPENDIX C

AN OUTLINE OF AFFECTIVE GOALS OF EDUCATION*

1. Self

1.0 General--self-realization, self-concept, self-awareness, self-understanding, self-acceptance, self-respect, self-esteem, self-analysis, self-improvement.

1.1 Locus of Control--self-direction, independence, power, self-reliance, initiative, autonomy, self-control, self-discipline.

1.2 Personal Organizing Systems--personal values, ethics, standards, morals, beliefs, constructs, principles, philosophy, style of life, philosophy of existence.

1.3 Personal Adjustment, Achievement, Interest, and Expression--

1.3a Health--good health habits, maintenance of physical and emotional well-being, safety, good nutrition.

1.3b Creativity--valuing and recognizing creativity as a basic human need; willingness to risk failure, to innovate; expressing oneself creatively and appreciating the creative expressions of others.

1.3c Coping With Change, Adversity, Ambiguity, and Uncertainty--functioning in a rapidly changing world, dealing with new situations and problems, adjusting to changing jobs and job requirements.

1.3d Productiveness, Work, Accomplishment--preparation for life-work, satisfaction of producing and contributing.

1.3e Leisure Time--constructive use of leisure time, intellectual interests, hobbies, recreation, sports.

1.3f Aesthetic Appreciation, Expression--appreciation of beauty, nature, art, literature, music, drama; creative self-expression through fine arts.

1.4 Personal Skills and Abilities--

1.4a Perception and Awareness--perceptual awareness, sensitivity, and accuracy.

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*Taken from Wight, A. R., Affective Goals of Education, Interstate Educational Resource Service Center, 1971.

1.4b Learning--passion for knowledge and pleasure in knowing; positive attitude toward learning; curiosity, an inquiring mind; motivation to learn; independence in seeking and using knowledge; good study habits; ability and desire to use the learning resources of the community; acceptance of learning as a life-long process of self-development.

1.4c Problem-solving and Decision-making--developing skills in problem-solving processes, securing information, analyzing, synthesizing, evaluating, drawing conclusions, and making decisions; interest in current problems, weighing alternatives for their solution.

1.4d Goal-setting and Goal-seeking--selection of meaningful and satisfying goals; selection and mastery of means for achieving chosen goals; setting personal goals based on understanding of abilities, interests, values, aspirations, and limitations.

1.4e Communication--competence in communicating feelings, ideas, and information through speaking, listening, reading, and writing; basic skills to obtain and express ideas through use of words, numbers, and other symbols.

2. Others

2.1 Interpersonal Effectiveness--developing and maintaining effective interpersonal relationships; high regard for friendly, sincere, cooperative relationships; demonstrating sensitivity, empathy, affection, love, friendship, respect, courtesy, loyalty, cooperation, trust, openness; respect for the dignity and worth of the individual, respect for individuality; skills, attitudes, and understanding necessary for effective group action.

2.2 Family Relationships, Responsibilities--appreciation of the significance of the family, understanding and acceptance of family responsibilities.

2.3 Intercultural Understanding, Effectiveness--recognition of and willingness to live in a pluralistic society, world; understanding and appreciation for persons from other cultures or ethnic groups; satisfying relationships with a wide range of people.

2.4 Social Responsibility (community, nation, world, mankind)--social awareness and responsibility; concern for one's fellow man, the general welfare, improvement of the human condition; acceptance of the rights and responsibilities of citizenship; loyalty to democratic ideals and institutions; respect for rights of others, acceptance of civic duties and community responsibilities; participation in the economic system as a producer and consumer; practicing socially acceptable behavior; recognition and understanding of world interdependence.

3. The Man-made World--understanding and appreciation of human achievement in the sciences, humanities, and the arts; understanding and appreciation of the roles of science and technology in improving man's way of life.

4. Nature--desire to maintain a healthful and harmonious natural environment; values the conservation and wise use of human and natural resources; understanding of man as a part of nature.

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